State of Alaska
Department of Fish and Game
Nomination for Waters
Important to Anadromous Fish

94-859

AWC Volume SE SC SW (W) AR IN USGS Quad NUNIVAK ISLAND B-5

Anadromous Water Catalog Number of Waterway 335-50-10670

Name of Waterway KAHNIRUK RIVER USGS name X Local name ____

Addition ____ Deletion ____ Correction ____ Backup Information X

For Office Use

Nomination # ____

Revision Year: ____

Revision to: Atlas ____ Catalog ____

Both ____

Revision Code: N/A

Regional Supervisor — Date 1/7/94

Ed Weiss — Date 12/22/93

Drafted — Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Migration	Anadromous
Chum	7/9/93			5	

IMPORTANT: Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as any other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments: SEE ATTACHED report RECIEVED FROM Kim Francisco 12/2/93.

Name of Observer (please print) ____

Date: 12/ ____ Signature: ____

Address: ____

This certifies that in my best professional judgement and belief the above information is evidence that this waterbody should be included in or deleted from the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: Ed Weiss 12/22/93

Rev. 7/93

STREAM SURVEY FORM

LOCATION Nunivak Island STREAM NAME Kahniruk River

USGS MAP Nunivak Island (B-5) SURVEYOR'S NAME Pete Velsko

PHYSICAL DESCRIPTION

Total Length [redacted]: 9 miles

Length Accessible to Salmon: unknown

Average Width: 25 feet Average Depth: 2.5 feet

Bottom Type: (4) (3)

Gradient: -

Water Data: Temp. (air) - (water) 10° C DO - pH -

Flow (cfs) - Turbidity clear

Pool: many Riffles some

SURVEY RESULTS

Date of Survey: 9 July 1993 Distance Surveyed 0.75 miles

Fish Species Present: 5 chum salmon

Status of Spawning: moving upstream

Evaluation of Stream: poor spawning habitat lower section of stream, needs further evaluation - may have possibilities

GENERAL INFORMATION

Located possible spring just above high tide line. Possible suitable habitat further upstream.

Bottom Type: [1] Gravel = 1-3" [2] Small Cobble = 3-6"
[3] Large Cobble = 6-12" [4] Boulders greater than 12"

Pools & Riffles: Relative abundance & maximum estimates depths of pools

Evaluation of Stream: Potential of stream as a spawning area; potential for instream incubation; potential for habitat improvement

1. Possible instream incubation
2. May be difficult to access by boat at low tide.

File: 26.4.3 Nunivak Island

MEMORANDUM STATE OF ALASKA
Department of Fish and Game

To: Bill Hauser
Regional Biologist
CFMD Division, Anchorage

Date: July 29, 1993

Phone: 443-3768

From: Pete Velsko
NW Alaska Fisheries
Rehabilitation Coordinator
CFMD Division, Nome

Subject: Trip Report
Nunivak Is.
04 July - 11 July 93

Sunday, July 4, 1993

Departed Nome on the 12:50PM flight to Anchorage, arriving at 2:15PM. Departed for Bethel at 6:05PM, arriving at 7:15PM. Weather in Bethel overcast with light rain. Over night in Bethel.

Monday, July 5

Departed Bethel via ERA Aviation at 8:35AM. Weather in Bethel looked promising with patches of blue sky showing. However, 20 minutes into the flight we were flying in total cloud cover. Arrived Mekoryuk approximately 9:45AM under low clouds and light rain. Checked in with Abe and learned that Ted Moses and the helicopter that might have been available to me were somewhere out on the Aleutian Islands. I never was to meet up with Ted during this trip. Abe had prepared his boat for the trip prior to my arrival which allowed us to depart Mekoryuk within an hour. Our first scheduled trip was to visit Nash Harbor. The trip was uneventful and only took about an hour in Abe's 26 foot aluminum boat, powered by a 150 Hp. outboard. About the time we got settled in, the weather deteriorated to a continuous steady rain. Surveyed the west side of the lagoon and stream approximately two miles to a potential instream incubation site that was located last year. Observed no chum salmon but saw several large Dolly Varden trout in the upper reaches of the lagoon. Overnighted at Nash Harbor.

Tuesday, July 6

Weather was calm and overcast with threat of rain. I spent most of the day investigating the Nash Harbor area, traveling on the east side from the mouth of the lagoon upstream approximately four miles. Surveyed potential instream incubation site primarily checking the gradient and the source of the spring. Although the gradient is less than ideal, it is sufficient for instream

incubation boxes. There is also ample water flow to accommodate several units. Observed many juvenile fish in the many small tributaries, which I believe are Dolly Varden and coho. However I was unsuccessful in capturing any to verify this. Traveled upstream to the point were the stream began to lose most of its' flow. Returned to camp about 5:00PM. While waiting for the tide, Abe and I made a seine set at the mouth of Nash Harbor. Within a few minutes we captured nineteen Dolly Varden trout, no chums. Test fishing with rod and reel also resulted in many (15-20) Dollys taken. One was measured at 27.5 inches and may gone five pounds. Departed Nash Harbor on the tide at 10:15PM, arriving Mekoryuk around midnight.

Wednesday, July 7

Fairly steady rain continued, pretty much the same weather conditions since I arrived on the island. For the most part, sea conditions were favorable for travel so plans were made to visit the Daprakmiut River when the tide was high enough to leave the village. After lunch we prepared to leave but had to cancel out due to mechanical problems with the boat. After some trouble shooting of the electrical system, we determined that the rectifier had burned out. Abe spent several hours attempting to locate a replacement. As luck would have it, none were available in Alaska. A part was finally located in Seattle and was "gold streaked" to Mekoryuk, it unfortunately was to arrive Saturday, on the flight I was to be departing on. At about 5:00PM with the ocean fairly calm, Abe and I decided to attempt reaching the Daprakmiut River in Abe's 18 foot Lund. We reached the river at low tide and spent several hours hiking the river upstream looking for salmon. We observed none. On our return to the mouth of the river we spotted about fifteen chum salmon of which we were able to capture seven of which pathology samples were collected. By the time we were done it was after 10:00PM. On our return trip, we ran into some pretty violent seas, not your typical sea conditions for an 18 foot Lund! Arrived safe and sound in Mekroyuk at 12:45AM.

Thursday, July 8

Rained on and off most of day. After lunch Able made arrangements for me to interview some local residents, a Ida Wesley and Robert Kolerok. Mr. Kolerok (age 91+), I was told knew a great deal about the salmon on Nunivak Island. He reconfirmed what others had said about Nash Harbor - there are little or no chum there, but perhaps as many as a hundred coho spawn there in late August, early Sept. It is well known for its abundance of Dolly Varden trout. According to Mr. Kolerok and later confirmed by Ida Wesley, (who maintains a summer fish camp at Daprakmiut River) there are perhaps as many as 200 - 300 chum salmon at most in the Daprakmiut River in good years and fewer than 100 during poor seasons. There is also a strong annual coho run to the river.

Other salmon runs to the northern half of the island (according to Mr. Kolerok) include the Mekroyuk R. (400 - 500), Jewoak, Kalmirukmiut, Nariksmiut, Ahdingmiut, Dachikjowaruk and Bimahyook Rivers, all of which have small chum runs of 100 fish or less. In the evening I worked a little on my field notes.

Friday, July 9

Weather continued to be overcast with intermitting rain. Sea conditions looked favorable for travel via the Lund, so Abe and I decided to investigate as many streams as possible west of Mekoryuk heading toward Nash Harbor. Before the wind picked up, we managed to visit: Jewoak Creek, Kahniruk River, Bimahyook Creek and Dadinowiki Creek. Due to heavy rain and later strong winds, our surveys of these rivers were relatively short covering under a mile. Of the four streams surveyed, chum salmon were observed in three streams and several unidentified jumpers in the fourth. Returned to Mekroyuk in late afternoon. Because Abe's boat was down, I was unable to visit the south side of the island as hoped. As it turned out, weather conditions continued to deteriorate and it would have been several days, perhaps up to a week before the weather improved enough to travel. Decided to return to Nome.

Saturday, July 10

Left Mekroyuk on the morning flight. I had to overnight in Anchorage and caught the early flight back to Nome on Sunday.

STREAM SURVEYS

Six streams, located in the northern section of Nunivak Island, identified by local residents as known chum salmon rivers were surveyed between 5 July and 9 July 1993. (see attachments). Due to inclement weather and mechanical problems, most streams received only a brief survey. The average distance investigated was under a mile. Some streams identified as having chum salmon runs such as the Kalmirukmiut, Nariksmiut, Ahdingmiut and Dachikjowaruk were not surveyed. The primary objectives of this survey was to locate and document chum salmon runs in the northern region of the island, determine run timing, locate esturine rearing areas, look for potential instream incubation sites, locate eggtake sites and potential donor stocks and collect pathology samples. A follow-up trip was to be undertaken again in early August. Unfortunately this trip was canceled due to other commitments in the Norton Sound area. The following is a brief summary of streams investigated.

- NASH HARBOR STREAM

Nash Harbor stream is located approximately 26 nautical miles from the village of Mekoryuk. The stream is predominantly spring fed with an average width of 30-40 feet for about the first mile and then narrows to less then 20 feet. Average water depth is 12-20 inches. The composition of the stream bed is primarily of medium to large rocks or boulders with some spawning habitat located just above the lagoon area. Some additional spawning habitat is to be found in the numerous side channels and small tributaries formed from these springs. Water temperature throughout the system measured 3.5 degrees C. (2.5 degrees C. in winter). Feasibility studies to determine the potential for applying instream incubation technology at Nash Harbor stream was conducted in 1992-93. Potential site(s) were identified at that time. Large lagoon area could provide a good natural nursery area for juvenile salmon fry, however, heavy Dolly Varden predation would have to be taken into consideration with any enhancement plan. Entry into the lagoon by boat is restricted to high tide and then just barely passable. Potential for instream incubation appears favorable. However, availability of broodstock (donor stock), logistics (potential sites approximately two miles inland) and frequent bad weather conditions (which seem common to that area) are serious obstacles which need to be further addressed. No chum salmon were observed during survey of Nash Harbor.

- DADINOWIKI CREEK

Located approximately 3.5 nautical miles east of Nash Harbor stream and within the Nash Harbor area, Dadinowiki Creek reportedly has a small local chum population (local resident supposedly caught 50 chums there in 1992 - Abe David). Because of inclement weather conditions only a small portion of the stream was surveyed and this consisted primarily of a large tidal flat area. However, several jumpers were observed and could easily have been chum salmon.

- BIMAHYOOK CREEK

A stream survey of approximately .75 mile was conducted of the west branch of the Bimahyook Creek. No spawning activity was observed, but six chums were seen moving upstream. Some fair to good spawning habitat was noted. Better spawning habitat may be further upstream.

- KAHNIRUK RIVER

Surveyed approximately .75 mile of stream and observed five chum salmon moving upstream. Poor spawning habitat in lower sections of river, no spawning activity observed. Located what appears to

be a small spring just above high tide line. Needs additional survey work. Possible potential for instream incubation.

- JEWOAK CREEK

Located approximately 9 nautical miles from the village of Mekroyuk, this relatively small stream in size and length (approx. four miles long, fifteen feet wide and one foot deep) had the most chum salmon of the six streams surveyed. Although only a small portion of the stream was surveyed fourteen chum salmon were observed in the first .5 mile some of which were preparing to spawn. Approximately 30 (perhaps more) were seen at the mouth of the stream which forms a large intertidal area (Lookswarat Bay). There may be a intertidal spawning population in this river. Lookswarat Bay may provide a good natural fry rearing area. Stream is unaccessible at low tide (Abe David). This river should be investigated further, there may be a fair population of fish in this system.

- DAPRAKMIUT RIVER

The Daprakmiut River is located approximately 12 nautical miles east of Mekroyuk Village. Preliminary feasibility studies have been conducted on this river in 1992-93 in an effort to locate suitable site(s) for installation of instream incubation boxes. Potential sites have been identified (test incubator cached at site in late winter of 1993). Surveyed approximately two miles of stream, observed no chum salmon in the river. Of the section surveyed, only limited spawning habitat observed, however, visibly was poor due to wind and rain. River is fairly wide (75-100 feet) with many deep pools (6-8 feet) and riffles. Average water depth about 2-2.5 feet. Many large rocks - boulders. Small lagoon at outlet of river may provide for some natural fry rearing areas. Channel to lagoon difficult to navigate at low tide. A fish camp located at the mouth was uninhabited during our visit. Approximately fifteen chum salmon observed moving in the channel toward the lagoon were captured using a seine. Seven chum salmon and two Dolly Varden were caught. Pathology samples were collected from the chums and subsequently shipped to the ADF&G laboratory in Anchorage for analysis. As with almost all area streams on the island, logistics and weather prose potential problems.

RESULTS AND DISCUSSION

o Ground surveys of six area streams conducted on the northern section of the island appears to reconfirm what local residents have indicated in interviews concerning chum salmon abundance. Very little if any (with the possible exception of the Mekroyuk River) large scale subsistence chum salmon fishery takes place in

the northern region of the island. From information collected to date, all data indicates that the chum salmon populations are very small in numbers, perhaps less then a hundred fish in most northern area streams. The majority of villages travel to the south side of the island in late June - early July to harvest their annual subsistence needs.

- Run timing has been difficult to accurately document for the northern region of the island. It appears from our surveys that I may have been about a week too early and was just witnessing the beginning of the run toward the end of my visit. From personal observations and local interviews, it appears that chum salmon begin to enter streams in the northern region of Nunivak Island beginning around the second week of July. What little runs there are, they probably peak before August, with spawning occurring sometime in late July, early August. A trip to the Daprakmiut River on August 26, 1992 revealed that all pink and chum salmon spawning had already occurred. Decomposing fish carcasses indicated spawning had occurred several weeks earlier. Local residents interviewed stated that chum salmon enter the streams earlier in the southern regions of the island than the northern and migrate northward up the east coast (Etolin Strait) of the island in a counter clockwise movement.

- In general (based on limited surveys), it appears that most streams in the northern region have limited spawning habitat, the stream beds being composed of many large rocks and boulders. This could be the most limiting factor and would explain the low population of fish. Nash Harbor stream has very cold water temperatures (3.5 degrees C.) relative to other area streams (8-10 degrees C.) and could be another factor in the lack of chum salmon there.

- The application of instream incubation boxes could prove successful in enhancing local salmon runs, but may be questionable whether it could be developed into a economically viable commercial fishery.

- Chum salmon stocks are found in very low abundance in the northern regions of the island. Although the cause is not fully understood, it may very well be of biological or environmental origin. No evidence has been found to indicate there ever were large populations of chum salmon in the northern regions, nor evidence of human overexploitation. On the other hand, there are healthy returns and abundant resident chum salmon in the majority of rivers in the southern portion of the island. These stocks are currently heavily utilized and are of sufficient numbers to meet local subsistence fish needs.

RECOMMENDATIONS (short-term)

1. Both Nash Harbor and the Daprakmiut River have the potential for being developed into instream incubation sites. However, logistical constraints and unfavorable weather conditions could prove to be risky and cost prohibitive in enhancing these streams. However, there is no reason not to proceed with installing a test incubator(s) to determine the feasibility of applying this technology.

2. Additional biological data needs to be collected. Available data on salmon resources on Nunivak Island is extremely limited, this is especially true for the northern region.

3. Consider stationing a Fisheries Technician (or Fisheries Biologist) on Nunivak Island for a period of four to six weeks in July - August to collect additional and more precise information. Norton Sound area fisheries activities (broodstock collection, eggtakes, etc.) are occurring at precisely the time that necessary field surveys should be beginning on Nunivak Island.

cc: Tom Kron
Bill Hauser
Terry Ellison
Jude Hensler (BSFA)